



PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Alcino Resende de ALMEIDA

Application No: 08/186,469

Group Art Unit: 3407

Filed: January 26, 1994

Examiner: K. Lee

For: SEAT FOR GATE VALVE

REQUEST FOR RECONSIDERATION UNDER 37 C.F.R. § 1.115

Assistant Commissioner of Patents  
Washington, D.C. 20231

Sir:

In the last Office Action, claim 2 was rejected under 35 U.S.C. §112, second paragraph as being indefinite. Claim 2 was rejected under 35 USC 103 as being unpatentable over Applicant's admission of Figure 2 representing prior art in view of Kerr and further in view of Khuzaie. Reconsideration and allowance of the application are respectfully requested in view of the following remarks.

The present invention is directed to a gas-lift valve for use in oil wells producing by continuous gas-lift. A gas-lift valve is so old and well known in the art that it is not even necessary to set forth the use for the valve in the claim. Even though the claim refers to a valve seat, this does not in any way imply or suggest that there might be a valve member which engages the valve seat. One skilled in the art immediately recognizes that a gas-lift valve for use in oil wells producing by continuous gas-lift is provided with a continuously open passage through the valve seat. Thus the claim is not the least bit indefinite and it would be totally misleading and improper to refer to

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the element 7 as a "flow restrictor having a central continuously open path" as suggested by the Examiner in the rejection of the claim under 35 USC 112, second paragraph. The suggestion appears to be based on the mind set that a valve always has to have a valve member engaged in a valve seat. However, based on a broader concept, a valve comprises any device which restricts a flow as for example the gas-lift valve of the present invention.

Traditional manufacturers such as CAMCO and McMURRY use the term "valve" in their catalogs to designate the type of valve which is the subject of the present invention. Copies of the CAMCO and McMURRY publications are enclosed herewith for the Examiner's information.

In view of the foregoing arguments and in view of the publications which clearly establish that a valve can be provided with a seat having a continuously open passage through which gas is allowed to flow, it is submitted that claim 2 is in complete compliance with the requirements of 35 USC 112, second paragraph and it is respectfully requested that the rejection be withdrawn.

The present invention desires to enhance the performance of the conventional prior art orifice valve by modifying the calibrated orifice of the gas-lift valve to be used in gas-lift production. Prior to the present invention, the loss of gas compression rate in the prior art gas-lift valves was not considered to be relevant since the gas compression cost through the well was not significant when considering the project as a whole. However, when working in very deep water, for example, off shore locations in which the water level reaches 1000 meters or more, any loss is very significant. Thus the present

invention is the result of a study to determine the behavior of this kind of gas-lift valve relative to the gas flow through the valve. The aim of the present invention was to reach as nearly as possible an isoentropic condition (low pressure loss). Thus the solution achieved by the present invention is very simple, but is not the least bit obvious to one skilled in the art. As pointed out in the previous response, it would not be the least bit obvious to one skilled in the art to utilize the teachings from the conventional valve having a movable valve member engageable with the seat. Likewise, it would not be the least bit obvious to one skilled in the art to utilize a Venturi type passage from other arts in the very specific field of a gas-lift valve.

With respect to the rejection based on prior art, it is noted that both Kerr and Khuzaie deal with technical problems entirely different from that discussed in the present application. The patent to Kerr intends to prevent the escape of fluid in a passage formed by two pipe sections joined together and provided with an internal Venturi tube overlapping the joint to reduce the rate of heat exchange between the fluid in the passage and the material of the joint. The solution proposed in Kerr was to use a Venturi tube made of an insulating material to protect the joint and at the same time to reduce sharp changes in the direction of flow of the fluid passing through the Venturi tube. Thus the patent to Kerr is directed to an entirely different type of device and the problem solved by Kerr has absolutely nothing to do with the problems of a gas-lift orifice valve in an oil well. Furthermore, the configuration of the Venturi passage of Kerr

does not have a smooth straight intermediate portion which is called for in Claim 2 of the present application. Thus it would not even be the least bit obvious to one skilled in the art to contemplate utilizing the Venturi of Kerr or to modify the construction of the Venturi of Kerr to meet the present invention.

The patent to Khuzaie teaches the use of a Venturi to measure the flow rate of fluids in a well known manner. However, it is necessary to determine the exact position to install the Venturi in a steam power plant in order to avoid interference in the measurement of the flow rate. Thus, Khuzaie proposes to provide a flexible connection to the pressure tap in a Venturi within a fluid conducting pipe. Thus the Venturi of Khuzaie is for an entirely different purpose than the present oil-lift valve and it would not be the least bit obvious to one skilled in the art to turn to the Venturi art to solve the problems associated with a gas-lift valve. Furthermore, the passage in the Venturi of Khuzaie fails to disclose the use of a straight, smooth intermediate section as called for by claim 2 of the present invention. Therefore, there is absolutely no teaching or suggestion in Khuzaie which would lead one skilled in the art to even contemplate utilizing the Venturi of Khuzaie in a gas-lift valve and to further modify the shape of the Venturi to meet the limitations of claim 2.

In view of the foregoing arguments, it is clear that claim 2 would not be obvious to one skilled in the art in view of the teachings of either Kerr or Khuzaie. The claim is specifically to a gas-lift valve for use in oil wells producing by continuous gas lift and there is absolutely no suggestion or teaching which would lead one skilled in the

art to turn to the non-analogous fields of Kerr and Khuzaie. For the exact same reason claim 2 is also considered to be patentable over the combination of the prior art valve of Figure 2 in combination with Kerr. Therefore, it is respectfully requested that claim 2 be allowed and the Application passed to issue forthwith.

If for any reason the Examiner is unable to allow the Application on the next Office Action and feels that an interview would be helpful to resolve any remaining issue, the Examiner is respectfully requested to contact the undersigned attorney for the purpose of arranging such an interview.

Filed concurrently herewith is a Petition and Fee letter for a Three Month Extension of Time and check for \$900.

Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this case, and any required fee for such extension is to be charged to Deposit Account no. 19-4880.

Respectfully submitted,



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